International Journal of Surgery 10 (2012) 206–208

Contents lists available at SciVerse ScienceDirect

International Journal of Surgery

journal homepage: www.theijs.com

Original research

Sliding inguinal hernias

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ARTICLE INFO

Article history:
Received 5 June 2011
Received in revised form
16 February 2012
Accepted 7 March 2012
Available online 15 March 2012

Keywords:
Hernia
Inguinal
Surgical mesh
Surgery
Retroperitoneal space

ABSTRACT

Purpose: To evaluate the frequency and anatomic presentation of sliding inguinal hernias as well as to analyze the technical difficulties during surgery and recurrence rate.
Methods: During 18 months we have recorded in a prospective manner data on all patients operated in one hospital for non-complicated inguinal hernia. All patients suspected of sliding variant have had their hernia sac opened and the sliding organ identified. All repairs were done using tension free technique. One year after discharge a telephone interview was performed with all patients to verify if they are free of recurrence.
Results: 464 patients were electively operated on for inguinal hernia during the study period. Sliding variant was diagnosed in 16 patients (3,4%). The sliding organs were: sigmoid colon in 10 patients (62,5%), urinary bladder in 2 patients (12,5%), appendix in 2 cases (12,5%) and caecum in 2 cases (12,5%). The tension free repair according to Lichtenstein or Rutkow-Robbins technique was performed in all cases. No major surgical complication was recorded. During 18 months follow-up we have seen one recurrence 3 months postoperatively.
Conclusions: The sliding inguinal hernia is a rare finding. The risk of injury of sliding organ is minimal. If tension free technique is used, the risk of recurrence is similar to that of patients with non-sliding inguinal hernia.

1. Introduction

A sliding hernia is a protrusion through an abdominal wall of a retroperitoneal organ. Frequency of sliding hernias is estimated at 6–8% of all elective inguinal hernia repairs. Sliding hernias are considered to be more challenging to operate on than uncomplicated inguinal hernias.

2. Material and methods

During the 18 months from 1/01/2008 to 30/06/2009 we have electively operated on 464 patients diagnosed with non-incarcerated inguinal hernias. All patients were operated by two surgeons (ALK and JMR). All patients were operated using tension free repair with artificial mesh with or without additional plug of artificial mesh (Lichtenstein or Rutkow-Robbins technique). Patients were discharged home 6–24 h postoperatively. Data of all patients were recorded in a prospective manner together with intraoperative findings, details of the technique applied, postoperative course and the result of follow-up visit which usually took place 4–5 weeks after discharge from the hospital. Special attention was paid during surgery to the hernia sac and its content in order to identify all sliding hernias. If sliding hernia was suspected, the hernia sac was opened, the retroperitoneal organ protruding into the sac was identified, and it was verified whether it forms part of a hernia sac or is merely attached to it by adhesions. In the latter case the hernia was not qualified as a sliding one.

3. Results

During the study period we have recorded 16 cases of sliding hernia (16/464; 3,4%). All patients with sliding hernias were male. All patients found to have sliding hernia presented with gross inguinal lump. The time of symptoms ranged from 6 months to 33 years. The age of patients with sliding hernias ranged from 55 to 85 years.

Altogether there were 11 sliding hernias on the left side (69%), of which one contained urinary bladder and ten contained sigmoid colon (Fig. 1). The remaining 5 sliding hernias occurred on the right side (31%) and contained appendix in two cases, caecum with appendix in two cases and urinary bladder in one case.

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doi:10.1016/j.ijsu.2012.03.002

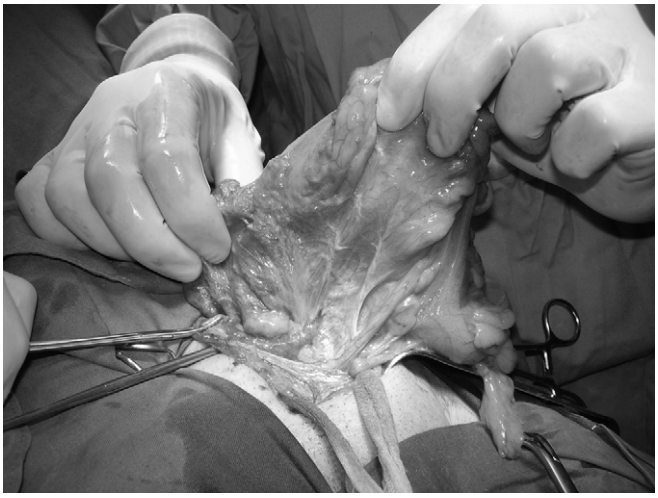

Fig. 1. Sigmoid colon forming part of an inguinal sliding hernia sac.

All patients were operated using prosthetic mesh with or without plug. Postoperative course was uneventful in all 16 cases, and the patients were discharged home 18–24 h after surgery. All patents were seen in the outpatient clinic 4–5 weeks after discharge and a telephone interview was performed 12 months after surgery to verify if they remain symptoms-free. One patient (1/16) presented with recurrence 3 months after surgery and was subsequently operated on.

4. Discussion

Although the first description of sliding inguinal hernia is often attributed to Galen, the first precise, modern description of sliding hernia accentuating "specificity" of this condition was made by Antonio Scarpa (1752–1832), Italian anatomist and surgeon, professor at the University of Pavia in Northern Italy. In his work "Sull'ernie" (On hernias) he described in details the sliding variant of inguinal hernia.[1]

Today's definition of sliding hernia, as read in "Abernathy's Surgical Secrets" says: "A sliding hernia is formed when a retroperitoneal organ protrudes (herniates) outside the abdominal cavity in such a manner that the organ itself and the overlying peritoneal surface constitute a side of the hernia sac".[2] This defines well more than 99% of sliding inguinal hernias, particularly type I (in which part of the peritoneal sac is made up by the wall of a viscus) and type II (in which mesentery of the retroperitoneal viscus forms part of the peritoneal sac) according to the classification by Bendavid. The remaining small group are sliding hernias type III according to Bendavid, in which the sliding hernia consists on a protrusion of a viscus itself, and the peritoneal sac is very small or even absent. This type of hernia is extremely rare and accounts for only 0.01% of all hernias.[3] In our series we have not seen this variant of sliding hernia.

Sliding hernia is quite a common finding in infant girls: up to 20% of all hernias in this group of patients are sliding hernias containing ovary and fallopian tube or fallopian tube alone.[4] In the adult population virtually all cases of sliding hernias occur in males.[5] We could find only one case of sliding hernia containing fallopian tube and ovary occurring in an adult, multiparous woman, described in literature.[6] Frequency of the sliding hernia in adults was historically estimated at around 6–8% of all hernia cases. In our series it reached only 3.4% (16/464). Most probably it is due to the fact that today's hernia patient present with smaller hernias with shorter duration of symptoms. The sliding hernias tend to occur in older patients that develop symptoms for quite a long time. In one of the biggest series of sliding hernias, published by Ryan in 1956, the average age of patients with sliding hernia was 59.35 years. In our series the average age of patients presenting with sliding inguinal hernia was 69.25. The mean duration of symptoms in the series by Ryan was 11.81 years compared to 5.25 year in the current series. These numbers dropped over time (Ryan's study in 1955 *vs.* our study in 2010), but still are higher than the ones describing current general population of hernia patients. The mean age of a hernia patient is estimated at 53.4 years and the mean duration of symptoms at 2.8 years.[7]

None of our sliding hernia patients was diagnosed as such preoperatively. And it is indeed very rare to establish preoperative diagnosis of a sliding hernia as there are no particular clinical signs indicating the possibility of sliding hernia. Older patients with big hernias, presenting with a long history of inguinal lump are the group most likely to have a retroperitoneal organ protruding into the hernia sac. There are single reports of preoperative diagnosis of sliding hernia containing urinary bladder based on a plain abdominal x-ray showing urinary bladder calculi within the groin.[8] Usually diagnosis is made after a hernia sac is opened. If surgeon does not open a hernia sac, a small sliding hernia can be easily overlooked. If the sac is manipulated gently this will not have any influence on the outcome of surgery in terms of early complications. This may, however diminish the estimation of a real percentage of sliding hernias within the population.

Traditionally sliding hernias were considered difficult to operate on.[3] This was largely caused by the fact that it was customary to aim at excision of a whole peritoneal hernia sac and high ligation of a remaining sac. Given that in a sliding hernia a part of the sac is formed by the retroperitoneal organ the risk of injury of that organ was indeed higher. Currently the excision of a sac is not considered necessary.[3] Gentle dissection of the sac allows to perform tension free repair as in any inguinal hernia. The opening of the sac and control of its content was performed in all our cases to confirm the diagnosis of sliding hernia. However, some authors suggest that in case of doubt as to the nature of the sac it is advisable not to open it, as it may prove to be intestinal wall, particularly in type III sliding hernias.[3]

The main operating steps that should be undertaken in order to safely operate on a sliding inguinal hernia are:

1. careful separation of the spermatic cord
2. separation of the transversalis fasia near the neck of the sac
3. careful identification of the sliding viscus and its wall
4. gentle dissections of the adhesions to allow the return of the viscus and the sac to the preperitoneal space

Some authors[3] discourage the use of the plug as it has the potential to harm either the sliding organ or an iliac vessel. In our experience the gentle placement of the plug with meticulous identification of the neighboring structures proved to be relatively safe, as we have not experienced any complications due to the plug placement.

The fundaments of sliding hernia repair are meticulous, gentle dissection and identification of all anatomical structures. A surgeon operating according to these principles and supported by a wide range of prosthetic material is in a far better situation than his colleague from the former surgical generations. What was then a surgical nightmare can be now an anatomical and historical curiosity.

Conflict of interest

None declared.

Funding

None declared.

Ethical approval

No. The study is a case series.

Author contribution

Andrzej L. Komorowski: study conception and design, acquisition of data, analysis and interpretation of data, drafting of manuscript, critical revision of manuscript.

Jorge Moran Rodriguez: acquisition of data, analysis and interpretation of data, drafting of manuscript.

Rehan Kazi: drafting of manuscript, critical revision of manuscript.

Wojciech M. Wysocki: analysis and interpretation of data, drafting of manuscript, critical revision of manuscript.

Acknowledgments

The authors wish to thank Prof. John Windsor from University of Auckland, New Zealand for his help in revising the manuscript.

This work has been presented as a poster during 15th Annual Meeting of the European Society of Surgery in Kraków, Poland on 17–19 November 2011.

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